

METHOD FOR RECEPTION AND PROCESSING OF INCOMING CALLS AND  
MESSAGING SERVICES IN A MOBILE COMMUNICATION TERMINAL BASED  
ON RELEVANT CONDITIONS

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BACKGROUND OF THE INVENTION

CROSS-REFERENCE TO RELATED APPLICATION

The entire disclosure of Korean Patent Application No.  
10-2003-0065555 filed on September 22, 2003 including  
10 specification, claims, drawings and summary is incorporated  
herein by reference in its entirety.

FIELD OF THE INVENTION

The present invention relates to a method for the  
15 reception and processing of incoming calls and messaging  
services in a mobile communication terminal, and more  
particularly to a method for the reception and processing of  
incoming calls and messaging services in a mobile  
communication terminal based on relevant conditions,  
20 according to which the priority and the time condition are  
specified for each caller identification (CID) according to  
the relevant individual and specific circumstances so that  
incoming calls, Short Message Services (SMSs) or Multi-media  
Message Service (MMSs) may be processed to be accepted or  
25 rejected based upon the relevant conditions.

## DESCRIPTION OF THE PRIOR ART

With the recent development of mobile communication technology, mobile communication terminals gradually have  
5 been equipped with various intelligent functions other than the simple call services. For example, mobile communication terminals these days may provide the caller ID (CID) function displaying the caller information (e.g., caller name, phone number, etc.) on the liquid crystal display (LCD) window so  
10 that the recipient or receiver may appropriately deal with unwanted calls, prank calls or indecent calls.

However, even though the CID function of these mobile communication terminals is widely used, in the related art, the only measure that a recipient can take upon receiving an  
15 unwanted call has been not answering the call. Accordingly, such caller inconveniently had to listen to the incoming bell sound for some time which is generated regardless of the recipient's intent to answer the call.

Further, there may be cases where a person wants to  
20 selectively accept calls, SMSs or MMSs from certain specific parties only depending on said person's current circumstances. However, in the relevant art, mobile communication terminals could provide only such services that merely restrict reception of calls or messages from certain group or enable  
25 the recipient to reject calls or messages generally upon

checking CID information. Mobile communication terminals in the relevant could not provide services that could enable recipients to efficiently respond to calls or messages in the given individual and specific circumstances.

5 For example, a person in the middle of a meeting or a person who is sleeping may want to selectively accept only calls, SMSs or MMSs from certain specific callers or senders in order to avoid unnecessary disturbance. However, mobile communication terminals in the relevant art could not  
10 accommodate the demand of such person. Thus, it is necessary to provide a function through which recipients or receivers can selectively accept only certain calls, SMSs or MMSs according to the relevant individual and specific circumstances by using the CID information.

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#### BRIEF SUMMARY OF THE INVENTION

Accordingly, the present invention has been made to solve the above-mentioned problems occurring in the prior art,  
20 and an object of the present invention is to provide a method for the reception and processing of incoming calls and messaging services in a mobile communication terminal, according to which the priority and the time condition are set for each caller identification (CID) so that incoming  
25 calls, Short Message Services (SMSs) or Multi-media Message

Services (MMSs) may be processed appropriately upon referring to the relevant priority and time condition.

Another object of the present invention is to provide a method for the reception and processing of incoming calls and  
5 messaging services in a mobile communication terminal, according to which the priority and the time condition are set and managed for each CID so that an incoming call, SMS or MMS received at a specific time point may be selectively accepted or rejected according to the relevant preset  
10 priority or time condition and that different reception processing may be performed even for calls, SMSs or MMSs received from the same CID according to the relevant priority and time condition.

Further Object of the present invention is to provide a  
15 method for the reception and processing of incoming calls and messaging services in a mobile communication terminal, according to which the priority and time condition are set for each CID so that different reception processing may be performed for different CID, thereby effectively protecting  
20 personal privacy and enabling effective service reception management under a special user environment such as in a case where the user is in a meeting or is sleeping, etc.

In order to accomplish these objects, there is provided a method for the reception and processing of incoming calls  
25 and messaging services in a mobile communication terminal

based on relevant conditions, the method comprising: setting the priority and time condition for the service reception and processing for each CID and managing the same in the mobile communication terminal; and upon the reception of a service  
5 having certain CID information, checking the priority and time condition for the corresponding CID and accepting or rejecting the received service according to the relevant priority and time condition.

Herein, said setting and managing the priority and time  
10 condition is conducted by registering/de-registering CIDs classified as certain groups or individual CIDs and setting, registering and managing the priority for the reception processing at certain specific time condition when registering each CID or CID group.

Also, said accepting or rejecting the received service  
15 comprises: upon the reception of an incoming call, SMS or MMS from a caller or sender, extracting CID information from the received service message; searching the priority and time condition set for the CID indicated in the extracted CID  
20 information and checking the priority for the CID at the present condition; and accepting or rejecting the incoming call, SMS or MMS according to the checked priority.

Said accepting or rejecting according to the checked priority is conducted by: if the priority is set as "high",  
25 accepting the service irrespective of the present reception

mode set in the mobile communication terminal; if the priority is set as "middle", accepting the service according to the present reception mode set in the mobile communication terminal; and if the priority is set as "low", rejecting the  
5 service irrespective of the present reception mode set in the mobile communication terminal.

Also, the method for the reception and processing of incoming calls and messaging services in a mobile communication terminal based on relevant conditions further  
10 comprises: upon the reception of a service with certain CID information while using a specific service in the mobile communication terminal in which the priority and time condition are set for each CID, checking the priority and time condition for the CID indicated in said CID information;  
15 and determining whether or not the specific service will be proceeded continuously and accepting or rejecting the received service according to the checked priority and time condition of the said CID.

Herein, said accepting or rejecting the received service  
20 is conducted by: if the priority for said CID at the present time is set as "high", stopping the current proceeding of the specific service and accepting the received service; if the priority for said CID at the present time is set as "middle", displaying on an LCD window a message setting forth said CID  
25 information and asking whether or not to accept the received

service, and accepting or rejecting the received service according to the instruction of the user of the terminal; and if the priority for said CID at the present time is set as "low", rejecting the received service and continuing to  
5 proceed the current specific service.

#### BRIEF DESCRIPTION OF THE DRAWINGS

The above and other objects, features and advantages of  
10 the present invention will be more apparent from the following detailed description taken in conjunction with the accompanying drawings, in which:

FIG. 1 is an internal constructional block diagram for the reception and processing based upon relevant conditions  
15 in a mobile communication terminal according to the present invention;

FIG. 2 is a flow chart illustrating the operation for the reception and processing based upon relevant conditions in a mobile communication terminal according to the present  
20 invention; and

FIG. 3 is a flow chart illustrating the operation of the reception and processing based upon relevant conditions in a mobile communication terminal during using a specific service according to the present invention.

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## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Hereinafter, a preferred embodiment of the present invention will be described with reference to the  
5 accompanying drawings.

In a mobile communication terminal of the present invention, the priority and time condition are set for each CID and services such as the incoming calls, SMSs or MMSs are selectively accepted or rejected according the relevant  
10 conditions. An internal construction of a mobile communication terminal for performing such reception and processing includes a CID extracting unit 11, a memory unit 12 and a control unit 13 as shown in FIG. 1.

The CID extracting unit 11 extracts CID information from  
15 the message of an incoming call, SMS or MMS received in the terminal and transmits the CID information to the control unit 13. The memory unit 12 stores the priority and time condition corresponding to the each CID information set in order to determine whether to accept or reject an incoming  
20 call, SMS or MMS upon receiving it.

The control unit 13 searches the priority and time condition stored in the memory unit 12 using the CID information transmitted from the CID extracting unit 11 to check the priority and time condition for the incoming call,  
25 SMS or MMS received in the terminal, so that the



corresponding incoming call, SMS or MMS may be processed to be accepted or rejected according to the priority and time condition.

The operation of the reception and processing based upon  
5 relevant conditions in such mobile communication terminal will be now described with reference to FIG. 2.

According to the present invention, different reception and processing can be conducted for the same CID according to relevant conditions by setting the priority and time  
10 condition corresponding to CID information. Also, different reception and processing can be conducted even at a special situation such as during a meeting, etc. according to the priority. For this purpose, first, the priorities (for example, high, middle and low) are set for CID groups or for  
15 individual CIDs and time conditions (for example, from 9 a.m. to 6 p.m.) are set for such priorities of the CID groups or individual CIDs (Step S21). That is, a terminal user registers/de-registers groups of CIDs or individual CIDs, sets priorities for the reception and processing at specific  
20 time conditions when registering the corresponding CIDs, and stores them in the memory unit 12 and manages them. Herein, various time conditions can be set for one CID and different priorities can be set for different time conditions of such one CID. For example, during the morning (or at a meeting,  
25 at business hours, etc.), the priority for certain CID may be

set as "low" and thus a service received from such CID can be rejected but in the afternoon (or upon termination of a meeting, after business hours, etc.), the priority for the same CID may be set as "high" and thus a service received  
5 from said CID can be accepted.

If a service such as the incoming call, SMS or MMS is received from a certain caller or sender where priorities and time conditions have been set for the respective CIDs in a mobile communication terminal through the foregoing procedure  
10 (Step S22), the CID extracting unit 11 extracts CID information from the message of the incoming call, SMS or MMS and transmits the same to the control unit 13 (Step S23).

Then, the control unit 13 searches the memory unit 12 in which the priorities and time conditions for the respective  
15 CIDs are stored to check whether or not there is the CID in the memory unit 12 that matches the CID information extracted from the presently received incoming call, SMS or MMS, by using the CID information transmitted from the CID extracting unit 11 (Step S24).

20 At this time, if it is determined that the same CID does not exist, it means that the priority and time condition has not been set for that CID. Thus, the control unit 13 performs the general reception and processing for the incoming call, SMS or MMS (Step S25).

25 In contrast, if it is determined from the search of the

memory unit 12 at the step S24 that the same CID exists, it means that the priority and time condition has been set for that CID. Thus, the control unit 13 searches the priority for the CID at the present time condition, that is, the  
5 priority information under the current time condition (Step S26), and accepts or rejects the corresponding service of the incoming call, SMS or MMS according to the searched priority.

For example, if the searched priority for the CID at the present is "high", incoming bell sound is outputted,  
10 accepting the incoming service irrespective of the current reception mode (i.e., manner mode or other mode) of the mobile communication terminal. In this manner, an incoming call, SMS or MMS service from a caller or sender who is set as important by the terminal user (i.e., the CID with high  
15 priority) is processed to be accepted irrespective of whether it is during a meeting, etc. (Step S27).

If the searched present priority the CID is "middle", the corresponding CID information is displayed on the LCD window and is accepted or rejected according to the present  
20 reception mode. Thus, an incoming call, SMS or MMS service from the other party whose priority is "middle" is processed to be selectively accepted or rejected by the terminal user according to the relevant conditions such as a meeting, etc. (Step S28).

25 If the searched present priority for the CID is "low",

the incoming service is rejected irrespective of the present reception mode. Thus, an incoming call, SMS or MMS from the other party who is set as unimportant (i.e., the CID with low priority) is rejected by the terminal user (Step S29).

5 Preferably, after the expiration of the time condition for the corresponding CID, the CID information for the rejected incoming call, SMS or MMS service is displayed on the LCD window, thereby enabling the terminal user to check the rejected incoming call, SMS or MMS service after the relevant  
10 condition such as a meeting is terminated.

Further, according to the present invention, even in a case where a specific service is being provided to the mobile communication terminal, the above-described reception processing according to relevant conditions can be  
15 implemented, which will now be described with reference to FIG. 3.

For example, if the terminal user is using a specific service, for example, the Wireless Application Protocol (WAP) surfing service (Step S31), when a service such as an  
20 incoming call, SMS or MMS from a certain caller or sender is received (Step S32) while using the WAP surfing service, the CID extracting unit 11 extracts the CID information from the presently received incoming call, SMS or MMS message thus to transmit the same to the control unit 13 (step S33).

25 Then, using the CID information transmitted from the CID

extracting unit 11, the control unit 13 searches the memory unit 12 in which the priorities and time conditions for the respective CIDs are stored thus to check whether or not there is the same CID as the CID included in the CID information  
5 extracted from the presently received incoming message, SMS or MMS message (Step S34). If it is determined that there is no such CID in the memory unit 12, which means that the priority and time condition for that CID have not been set, the control unit 13 conducts ordinary reception processing  
10 for a general incoming call, SMS or MMS (Step S35).

On the other hand, if it is determined at the step S34 that there exists the CID in the memory unit 12, which means that the priority and time condition for the corresponding CID have been set, the control unit 13 searches the priority  
15 for the CID at the present time condition (Step S36), and accepts or rejects the corresponding service of the incoming call, SMS or MMS according to the searched priority.

For example, if the searched priority for the CID at the present time is set as "high", the WAP surfing service  
20 presently proceeded in the terminal is temporary stopped and the presently received incoming call, SMS or MMS service is accepted. In this manner, an incoming call, SMS or MMS from a caller or sender who is set as important by the terminal user (i.e., the CID with high priority) is processed to be  
25 accepted even while a certain specific service is used (Step

S37).

If the searched priority for the CID at the present time is "middle", the corresponding CID information a message inquiring about whether or not the terminal user will accept the received service are displayed on the LCD window. In this manner, an incoming call, SMS or MMS may be accepted or rejected according to the choice of the terminal user (Step S38).

If the searched priority for the CID at the present time is "low", the presently received incoming call, SMS or MMS is rejected and the specific service presently proceeded continues to be proceeded (Step S39). Preferably, after the termination of the corresponding specific service, the CID information for the rejected incoming call, SMS or MMS is displayed on the LCD window, thereby enabling the terminal user to check the incoming call, SMS or MMS rejected during the specific service.

As described above, the present invention provides a method for the reception and processing of incoming calls and messaging services in a mobile communication terminal wherein the priority and time condition are set for each CID so that an incoming call, SMS or MMS received at a specific time point may be processed to be selectively accepted or rejected according to the preset priority or time condition for the incoming call, SMS or MMS and that different reception

procedures may be performed even for the same CID according to the relevant priority and time conditions.

Also, the present invention provides a method for the reception and processing of incoming calls and messaging  
5 services in a mobile communication terminal wherein the priority and time condition are set for each CID so that different reception procedures may be performed based upon the relevant priorities and conditions, thereby effectively protecting personal privacy and enabling effective service  
10 reception management under a special terminal service environment such as in a case where the user is in a meeting or is sleeping.

Although preferred embodiments of the present invention have been described for illustrative purposes, those skilled  
15 in the art will appreciate that various modifications, additions and substitutions are possible, without departing from the scope and spirit of the invention as disclosed in the accompanying claims. For example, if multiple incoming calls, SMSs or MMSs are received simultaneously at a specific  
20 time point, the present invention may implement the present invention to deal with such multiple services by, for example, accepting the one with the highest priority first among them.